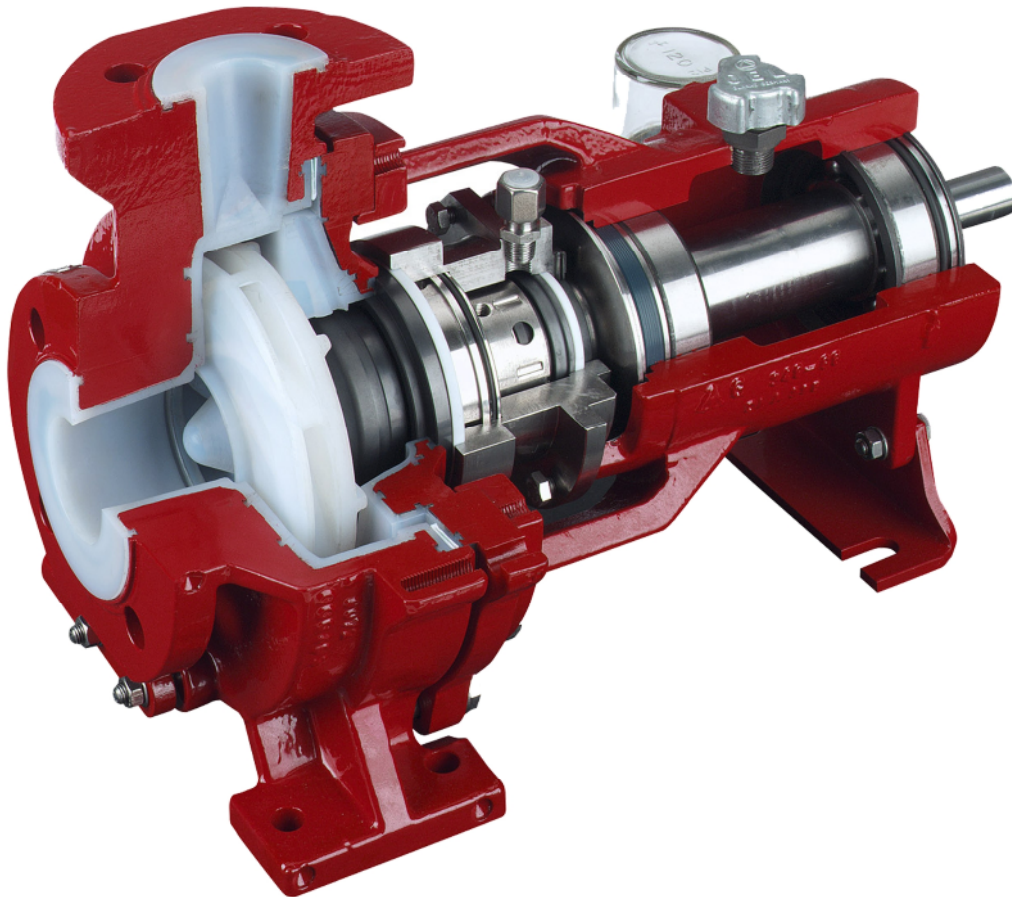


Series SCK

Mechanical Seals

Stationary, single, with quench

Stationary, single, with lip ring and quench



Keep for future use!

This operating manual must be strictly observed before transport, installation, operation and maintenance

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Relevant documents

- ◆ Operating manual SCK long-life grease and oil bath lubrication **9220-050-en**
- ◆ Operating manual mechanical seal of the manufacturer

1 Technical data

Manufacturer :

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Authorised person acc. to machinery directive 2006/42/EG: Gregor Kleining

Designation :

Series SCK, mechanical seals

- ◆ RG-4, stationary, single, with quench
- ◆ RG-4, stationary, single, with lip seal and quench **(not applicable for EX-areas).**

Materials :

Seal housing: Stainless steel

Wetted parts:

Mechanical seal: SSiC, FKM, FFKM etc., see also data sheet

Temperature range : see installation and operating manual SCK, Section 1.

Temperature classes : see installation and operating manual SCK, Section 2.6.7.

2 Safety, transport and storage

The relevant sections in the adjacent installation and operating manuals apply to safety, transport and storage.

This installation and operating manual is only valid in conjunction with the installation and operating manuals of

SCK long-life grease and oil bath lubrication
9220-050-en

2.1 Intended use

Single mechanical seals for plastic-lined pumps of the series SCK are suitable for the use of aggressive and pure media.

The instructions contained in the operating manual or contractual documentation are to be observed, if necessary consult the manufacturer.

All the important features are documented in the data sheet included in the scope of delivery.

3 Product description

For a product description of the pump, see the installation and operating manual for the SCK series.

Section 7.1

The **sectional drawing** shows a stationary, single mechanical seal RG-4 with quench.

Section 7.2

The **sectional drawing** shows a stationary, single mechanical seal RG-4 with lip ring and quench.

All components which come into contact with the process medium are either lined with plastic or are made of other resistant materials, e.g. silicon carbide.

4 Commissioning / Shutdown

4.1 Initial commissioning

See installation and operating manual for the SCK series.

4.2 Mechanical seals

The design and material combination are specified in the data sheet.



The proper condition of the components and the protective facilities must be ensured to prevent any risk from escaping medium.



The regulations and recommendations of the mechanical seal manufacturer must always be observed.

4.2.1 Use in an explosive area



Use in an explosive area means that only mechanical seals may be employed which permit observation of temperature.

The operating manual of the respective mechanical seal manufacturer is an integral part of this general operating manual.

This permits, amongst other things, the calculation of the expected surface temperature at the mechanical seal. The suitability for the permissible temperature class as per ATEX is hereby given.

CAUTION:

The permissible temperature class of the complete unit (pump, mechanical seal, coupling, motor) is determined by the lowest temperature class of the individual components.

Example: Pump **T4**, mechanical seal **T3**,
coupling **T4**, motor **T4**

In both cases the unit may only be used in atmospheres which may ignite above the temperature class T3, i.e. >200 °C (>392°F).

4.2.2 Stationary, single mechanical seal RG-4, with quench

Design and material combination are specified in the data sheet.

A pump with a stationary mechanical seal with quench may only be started up when the quench system is in operation and the pump is filled with process medium.

The pressure of the quench fluid must be max. 1 bar.
The admissible pressure for the storage container must also be observed.

If process water is used for quenching, a flow rate of approx. 40 l/h should be set. After a running-in phase of approx. 10 h the flow rate can be reduced so that the quench fluid emerges heated by about 20°C. A minimum flow rate of 5 l/h should be maintained.



Are the available connections correctly made?

QE - quench fluid inlet

QA - quench fluid outlet

See also sectional drawing in [Section 7](#).

4.3 Improper operation and their consequences (examples)



Improper operation, even for a short time, can result in serious damage to the unit.

In connection with explosion protection, potential sources of ignition (overheating, electrostatic and induced charges, mechanical and electric sparks) may result from these inadmissible modes of operation; their occurrence can only be prevented by adhering to the intended use.

For examples, see installation and operating manual SCK, [Section 6.6](#).

5 Maintenance



The regulations of the mechanical seal manufacturer must always be observed.

See also the installation and operating manual for the SCK series.

Any quench fluid which has escaped must be replenished in good time.

A difference is made between open and closed quench systems.

It must be ensured with closed systems that the filling level is always adequate. The quench fluid can become enriched with the process medium through leaks. It is therefore to be completely changed from time to time in line with the operating requirements.



If the filling level of the quench fluid has risen in a storage container provided, it must be replaced immediately. If the filling level of the quench fluid has risen in a storage container provided, it must be replaced immediately.

5.1 Dismantling stationary, single mechanical seal RG-4, with quench

Dismantling can be checked using the sectional drawings in [Section 7](#) and [Section 9](#) of the installation and operating manual SCK as well as the components available.

5.1.1 Dismantling of impeller, back plate and RG-4

First of all relieve the mechanical seal by undoing the attachment screws **901/5**.

Undo screws **901/6** and washers **554/6** of the bearing pedestal / back plate.

Move the back plate almost up to the impeller with light hammer blows.

Bearing pedestal group 3:



The labyrinth disc **555** must be secured with two bolts **prior** to the dismantling of the impeller. For this purpose there are 2 bores Ø5mm in the bearing pedestal. The mechanical seal is pressure-relieved as a result.

See dismantling in [Section 7.7.1 and 7.7.5](#) in the installation and operating manual SCK.

- Undo impeller **230** with a strap wrench or assembly wrench. **Right-hand thread!** Press off the housing cover in the direction of the impeller.

For assembly aid for impeller, see [Section 10.1](#) in the installation and operating manual SCK.

With some pump sizes the work sequence is to be repeated once or twice so that the cup springs **950/1** can be completely relieved.

Then completely remove the impeller **230**. Remove the mating ring **475/1** and the flat gasket **400/1**.

Remove back plate (for sequence, see [Sections 4.2.1 and 7.7.4](#) in the installation and operating manual SCK) with centering ring **511**, O-ring **412/3**, seal face **472/1** and intermediate ring **509**.

Pull the entire rotary ring carrier, comprising the parts rotary ring carrier **485/1**, stud **560/1**, spring **477/1**, thrust ring **474** and O-ring **412/5** out of the seal housing **483**.

5.1.2 Dismantling of shaft sleeve

Pull the shaft sleeve **524** with the rotating unit **470/1** which is still installed off the shaft.

For changing the rotating unit, undo the setscrew **904/2** (depending on the design of the shaft sleeve) and pull it off the shaft sleeve **524**.

Observe the operating manual of the mechanical seal manufacturer.

Remove seal housing **483**.

Remove mating ring **475/2**.

If plastic bearing points of the mating ring **475** or of the shaft sleeve **524** are destroyed, they can be renewed by the pump manufacturer.

5.2 RG-4 with lip ring dismantling / assembly shaft sleeve

Pull the shaft sleeve **524** off the shaft.

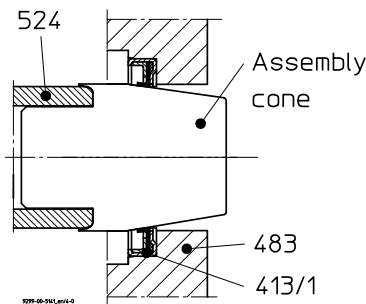
Remove sealing house **483** with lip ring **413/2**.

Assemble new lip ring **413/2** in the sealing house **483**.
Assemble carefully! The lip ring could be damaged.

Attach the assembly cone for the assembly of lip ring **413/2** and shaft sleeve. **524**. See **Picture 1**.

For assembly aid for assembly cone, see **Section 10.3** in the installation and operating manual SCK.

Push shaft sleeve with lip ring onto the shaft.



Picture 1

5.3 Notes on assembly

Only use original spare parts.

Do not use any defective parts.

During assembly the accepted rules of mechanical engineering are to be observed.

Bearing pedestal group 3:

Always make sure that during installation of the mechanical seal the labyrinth disc is secured by 2 bolts.

The bolts must be removed again after installation of the impeller.

The rotary ring carrier **485/1** must engage in the spring-type slotted pin **531/1**. Mark position beforehand.

The seal face **472/2** must engage in the studs **560/1**. Mark position beforehand.

The rotating unit **470/1** must be flush with the key **940/2** in the case of a shaft sleeve made of Al_2O_3 and tightened with the setscrew **904/2**. In the case of a shaft sleeve made of stainless steel the key is positioned firmly against one end.

When pushing on the mating ring **475/1**, make sure that the position of the flat section matches that on the shaft.

6 Faults



Faults may result from inadmissible modes of operation. Such inadmissible modes of operation – even brief ones – may cause serious damage to the unit.

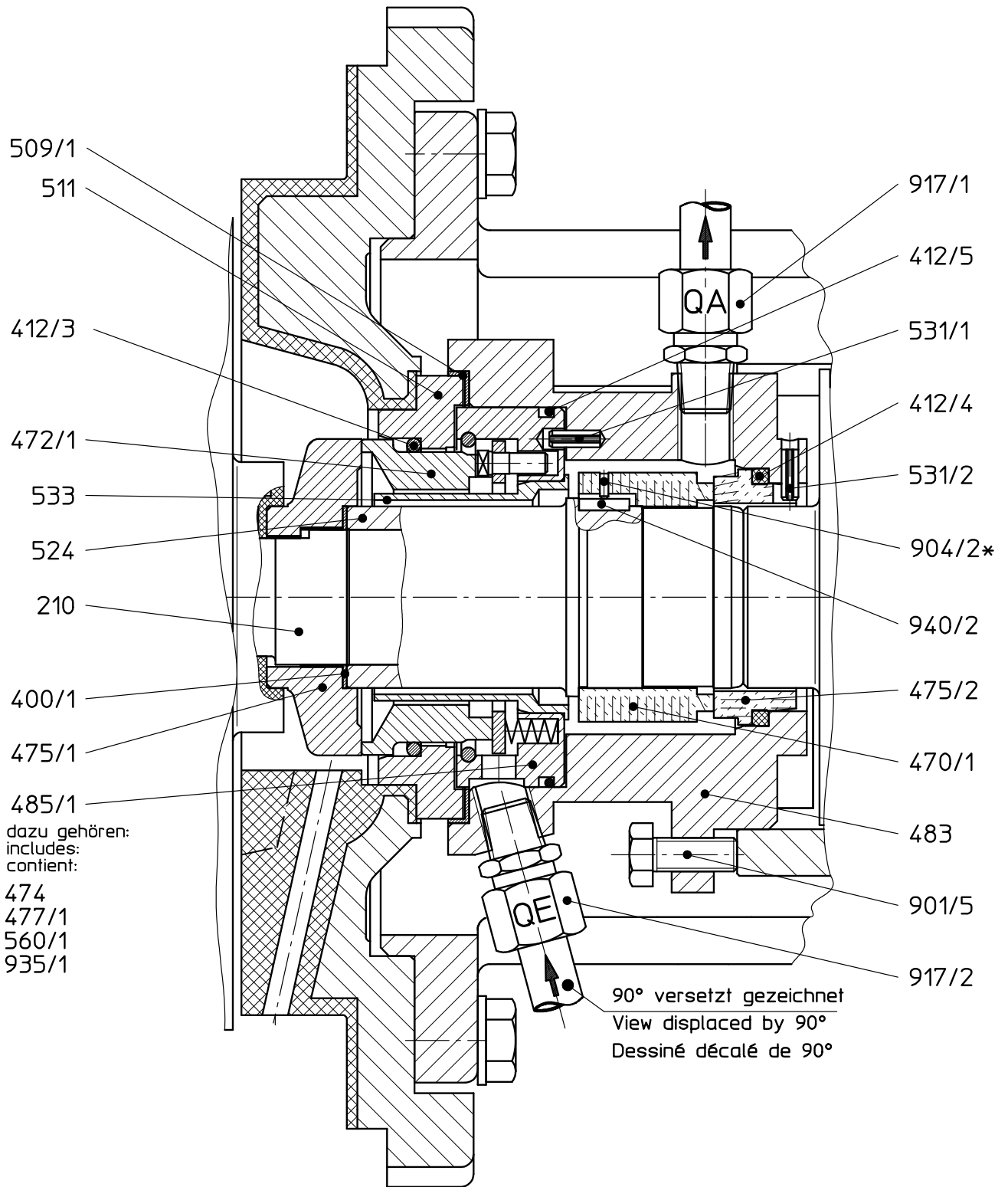
In connection with explosion protection, potential sources of ignition (overheating, electrostatic and induced charges, mechanical and electric sparks) can result from these inadmissible modes of operation; their occurrence can only be prevented by adhering to the intended use.

Should there be any uncertainty about the remedy to be applied, please inquire at the in-house pump office or at the pump manufacturer's.

See also **Section 8** in the installation and operating manual of the SCK series.

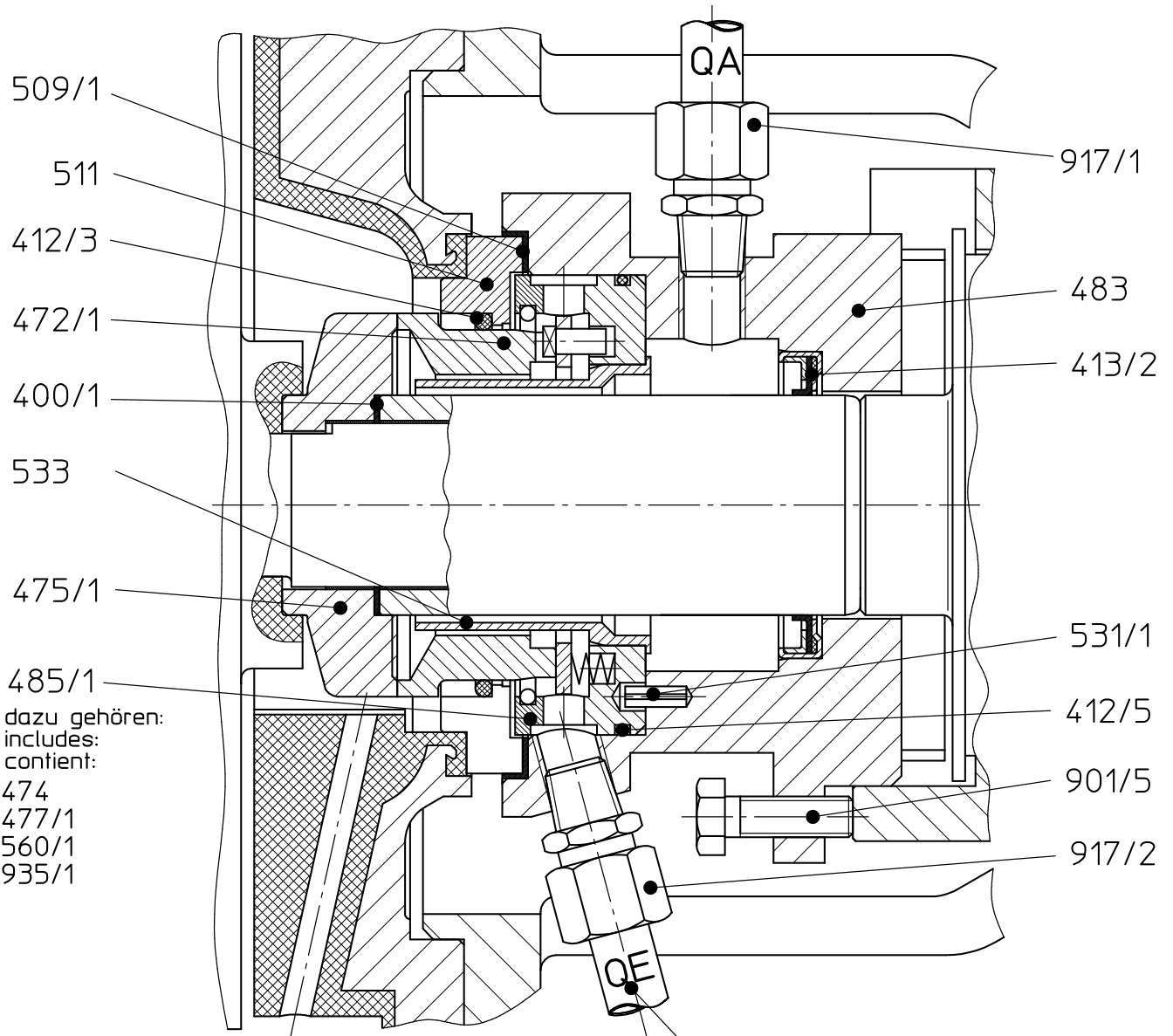
7 Sectional drawing

7.1 Stationary, single mechanical seal RG-4, with quench



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7.2 Stationary, single mechanical seal RG-4, with lip ring and quench



90° versetzt gezeichnet

View displaced by 90°
Dessiné décalé de 90°

7.3 Legend

161	back plate	487	mating ring adapter
210	shaft	509/1	intermediate ring
400/1	flat gasket	511	centering ring
412/x	o-ring	524	shaft sleeve
413/x	lip ring	531/x	spring-type slotted pin
470/x	rotating unit	533	guide sleeve
471	cover seal	901/5	hex. screw
472/1	seal face	904/2 *	setscrew
475/x	mating ring	917/x	screw-in pipe connector
483	seal housing	935/1	snap ring
485/1	rotary ring carrier	940/2	key

includes:

474	thrust ring
477/1	spring
560/1	stud
935/1	snap ring

* Drilled during assembly
only with shaft sleeves made of Al₂O₃

QE = quench fluid inlet

QA = quench fluid outlet or venting nozzle